



Original Research Article

The role of demystifying anaesthesia in allaying anxiety and improving post-operative patient satisfaction in a tertiary care centre: A randomised control trial

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ABSTRACT

Background: Preoperative anxiety and stress are inevitable in patients awaiting surgery. However it is known that larger doses of anaesthetics, higher peri- and post-operative requirement of analgesia and longer hospital stay follow higher levels of anxiety. Studies have shown that pre-operative education reduces anxiety symptoms. This study was undertaken to answer the question: “Does a structured educational intervention to demystify anaesthesia reduce fear and anxiety prior to surgery?”

Objectives: To assess the role of patient education in reducing pre-operative anxiety and fear and improving satisfaction in patients undergoing surgery using the Anesthesia- and Surgery-dependent Preoperative Anxiety Scale (ASPA) and the Visual Analog Scale for fear and the Short Assessment of Patient Satisfaction (SAPS) in patients who have received the structured educational intervention and those who have not.

Materials and Methods: This is a parallel group, single blinded, randomised control trial in 56 consenting patients awaiting abdominal surgery under general anaesthesia. The participants were randomized to the interventional and comparator groups and ASPA and VAS were administered. Participants in Group A were given the structured educational intervention to demystify anaesthesia. The ASPA and VAS Scales were again administered by a blinded assessor to all participants. The student investigator administered SAPS on the third post-operative day or prior to discharge, whichever was earlier.

Result: There was significant reduction in median scores before and after intervention for anxiety (ASPA=2) and fear (VAS=20) in intervention group compared to the comparator group. (p value=<0.001). The median scores for patient satisfaction as measured by SAPS was also higher in the intervention group compared to the comparator group. (p value=0.042).

Conclusion: There was a significant reduction of pre-operative fear and anxiety in the intervention group, while the patient satisfaction was also higher in the intervention group.

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1. Introduction

Preoperative anxiety and stress are inevitable in patients awaiting surgery and helping to attenuate pre-operative stress and anxiety has been the focus of research in medical psychology for centuries. Persons with an elevated

level of pre-operative anxiety require larger doses of anaesthetics, have a higher peri- and post-operative requirement of analgesia leading to longer stay in hospital. Emotional stress in surgical patients may be manifest as peri-operative tachycardia and hypertension due to stress-induced sympathetic stimulation.¹

The degree of patient's burdens may be assessed with the help of questionnaires and the personal responses can

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help the surgeon to be aware of the personal anxiety of patients and consider patient preferences when deciding about surgery.² The anxiety scores of patients were used by Kim et al to assess vital signs during anaesthetic induction for adult patients for predicting changes in vital signs during anaesthetic induction enabling the physician to be mindful of preoperative anxiety.³

The patient's fears include not waking up again, awareness during surgery, postoperative pain and nausea and becoming paralyzed after the surgery.⁴ Studies have shown that pre-operative counselling and education are associated with reduced anxiety symptoms.^{5,6} The anaesthesiologist's qualifications, experience and their presence or absence during the anaesthesia are additional concerns that cause anxiety.⁷

Preoperative anxiety affects the level of recovery and increases postoperative pain.⁸ There are many reported ways to measure a patient's anxiety level such as the Anaesthesia and surgery-dependent Preoperative Anxiety Scale (ASPA), Spielberger's State Trait Anxiety Inventory (STAI) and the Amsterdam preoperative anxiety and information scale.

Kindler et al found that young patients, female patients, and patients with no previous anaesthetic experience or a previous negative aesthetic experience had higher anxiety scores. Patients worried most about the waiting period preceding surgery and were least concerned about possible awareness intraoperatively.⁹

Maheshwari et al suggested that every patient coming for elective Caesarean section should be assessed for the presence of anxiety in their routine preoperative anaesthesia assessment and patients found to have a high level of anxiety should be scheduled for an additional counselling session from anaesthetist. This measure helps to reduce the anxiety level and assists in making a rational decision regarding their choice for anaesthesia technique.¹⁰

1.1. Pre-operative education and patient's anxiety

Studies have also shown that patients found their anxiety levels had decreased if they were given detailed information about the surgical procedure and the anaesthesia.^{11,12}

Thus pre-operative information and education can help the patient by relieving anxiety in patients undergoing surgery. Another aspect is improving nursing intervention such as pain relief, prior to surgery. Lin et al found that pre-operative nursing intervention for pain has positive impacts on patients undergoing abdominal surgery.¹³

Being aware of the lack of awareness and need for education of patients posted for surgery coming from the surrounding rural areas, we felt the need to prepare the patient for surgery by providing information and education to reduce fear and anxiety.

This study was therefore planned as a randomized control trial to answer the research question "Does a planned

pre-operative educational module to demystify anaesthesia decrease anxiety and fear and improve post-operative patient satisfaction in patients preparing for surgery?"

This trial was undertaken with the alternate hypothesis that a pre-operative educational module allays anxiety and fear and improves patient satisfaction in patients undergoing elective surgery in this tertiary care centre in South India.

The objectives of the study were

1. To assess the role of patient education in allaying pre-operative anxiety and reducing fear in patients posted for abdominal surgery under general anaesthesia using the Anaesthesia- and Surgery-dependent Preoperative Anxiety Scale (ASPA)² and the Visual Analog Scale for fear.
2. To assess if there is a significant difference in patient satisfaction, postoperatively, using the Short Assessment of Patient Satisfaction (SAPS) in patients who have received the structured educational intervention and those who have not.^{14,15}

2. Materials and Methods

This study is a parallel group, single blinded, randomised control trial on patients posted for abdominal surgery in a tertiary care hospital. All consenting patients of ASA I and II physical status¹⁶ posted for elective surgery under general anaesthesia, between 20 to 60 years, were consecutively recruited if they fulfilled the inclusion criteria. Medical personnel and patients having elective surgery for trauma were excluded. Randomisation to the interventional group or the comparator group was done by computer generated permuted block randomisation with allocation concealment using sealed opaque envelopes.¹⁷

Group A, the interventional group, received the regular pre-operative counselling and in addition the structured educational intervention to demystify anaesthesia. It included information regarding anaesthesia, safety of anaesthetic medication, assurance regarding competence of anaesthesiologists using principles of effective communication including active listening, asking questions, observing body language of the patients, paraphrasing and summarising. The intervention was done sensitively using good principles of communication such as active listening, paraphrasing, observing body language, asking questions and summarizing. Participants randomised to Group B, the comparator group, received only the regular pre-operative counselling.

The sample size was calculated using the non-parametric Mann Whitney Two group U-test by nMaster version 2.0 software.¹⁸ A sample size of 28 in each group is needed to detect a mean difference of 5 with a power of 80% and an alpha error of 5%.

2.1. Instruments

2.1.1. ASA Physical status classification

The ASA physical status classification system is a system for assessing the fitness of patients before surgery. In 1963 the American Society of Anesthesiologists (ASA) adopted the five-category physical status classification system; a sixth category was later added.¹⁶

2.1.2. The Anaesthesia- and Surgery-dependent Preoperative Anxiety Scale (ASPA)

ASPA is designed for evaluation of anxiety related to both anaesthetic and surgical procedure (eight items) using a five-point Likert scale (1. Never; 2. Low; 3. Moderate; 4. Strong; 5. Extreme).²

2.1.3. Visual Analogue Scale (VAS)

VAS is used for measuring fear on a 100 mm straight line scale, with zero indicating “No fear, and 100 indicating “Maximum fear”. VAS score ≥ 50 will be taken as the presence of fear.⁹ Patients were requested to assess their own fear and make a corresponding mark on the line. VAS is quick to use in patients who acknowledge their own fear and studies have shown that the VAS measuring fear of anesthesia correlated well with other measures of fear.^{2,19}

2.1.4. Short assessment of patient satisfaction

The Short Assessment of Patient Satisfaction (SAPS) is a short, reliable and valid seven item scale that can be used to assess patient satisfaction with their treatment. The SAPS scale is based on a firm theoretical model of patient satisfaction and its descriptive system covers the known dimensions contributing to patient satisfaction. The reliability of SAPS was Cronbach $\alpha = 0.86$.^{4,5} Permission to use the tools was requested from the website of the authors.^{2,14} The SAPS is a generic measure of patient satisfaction. Although it was developed and validated to assess satisfaction of patients with incontinence settings it can be used in any service settings with any treatment group. This means patient satisfaction scores in different treatment settings can be compared. With only 7 items the SAPS is short and simple to use and score. Most patients will only take a minute to complete it.^{14,15}

Permission was obtained from the management and the department of anaesthesia. This study was approved by the Institutional Review Board and Ethics Committee of this institution. After explaining details of the study, written informed consent was obtained from each participant included in the study. All the information gathered were kept confidential and the data was stored anonymously using study numbers.

The demographic variables were compared in the two groups using Chi-square test to see if the groups were homogenous. All categorical data were compared using Chi square test as the data was normal. The continuous variables

were analysed using Mann Whitney U test as the data was non-parametric using SPSS soft ware.

The factors known to influence the feeling of anxiety and preoperative stress such as friendly ambience, calm, and open attitude were kept comparable in all patients.

The study flow diagram following Consort guidelines is given in Figure 1.

3. Observations and Results

In this study we assessed fear and anxiety in patients pre-operatively and patient satisfaction post operatively. The frequency distribution of the baseline characteristics are given in table 1.

The mean age of the 56 participants recruited to the study was 43.4 years. Of these 18(32.1%) were males and 38 (67.8%) were females. The gender distribution was equal in both groups. More than half the participants (29{51.8%}) had atleast higher secondary education of which 16 (28.5%) were graduates and 4 (7.1%) were postgraduates. More than half the participants had previous surgeries. Mot of the participants (25 {44.6%}) were admitted for abdominal surger, 11(19.6%) for breast surgery and 19 (33.9%) for neck surgery.

The level of anxiety was measured using the ASPA scale and there was a significant change in the ASPA score before and after intervention in Group A while there was no change in the comparator group which did not receive the structured educational module as seen in Figure 2.

The level of fear was self-scored by the participants in both groups and there was a significant reduction in scores in the intervention group compared to the comparator group as seen in Figure 3.

Patient satisfaction was measured using the SAPS test. Most of the patients had a high satisfaction score with 50 out of the 56 participants saying they were satisfied with the care received. When the two groups were compared the median scvores of patients in the intervention group were higher than the scores of patrticipants in the comparator group ($p < 0.042$). In adfdition five of the participants in the intervention group were highly satisfied. This is illustrated in Figure 4.

4. Discussion

There were 56 participants in the study and most of them were over 35 years of age. Over 65% of the participants were females and just over half the number had received college education. More than half of the participants did not have previous surgeries. Regarding type of surgery, 19 (33.9%) were posted for neck surgery, 11 (19.6%) for breast surgery and 25 (44.6%) for abdominal surgery.

Considering the baseline characteristics of Group A and Group B, we found that the two groups were homogenous.

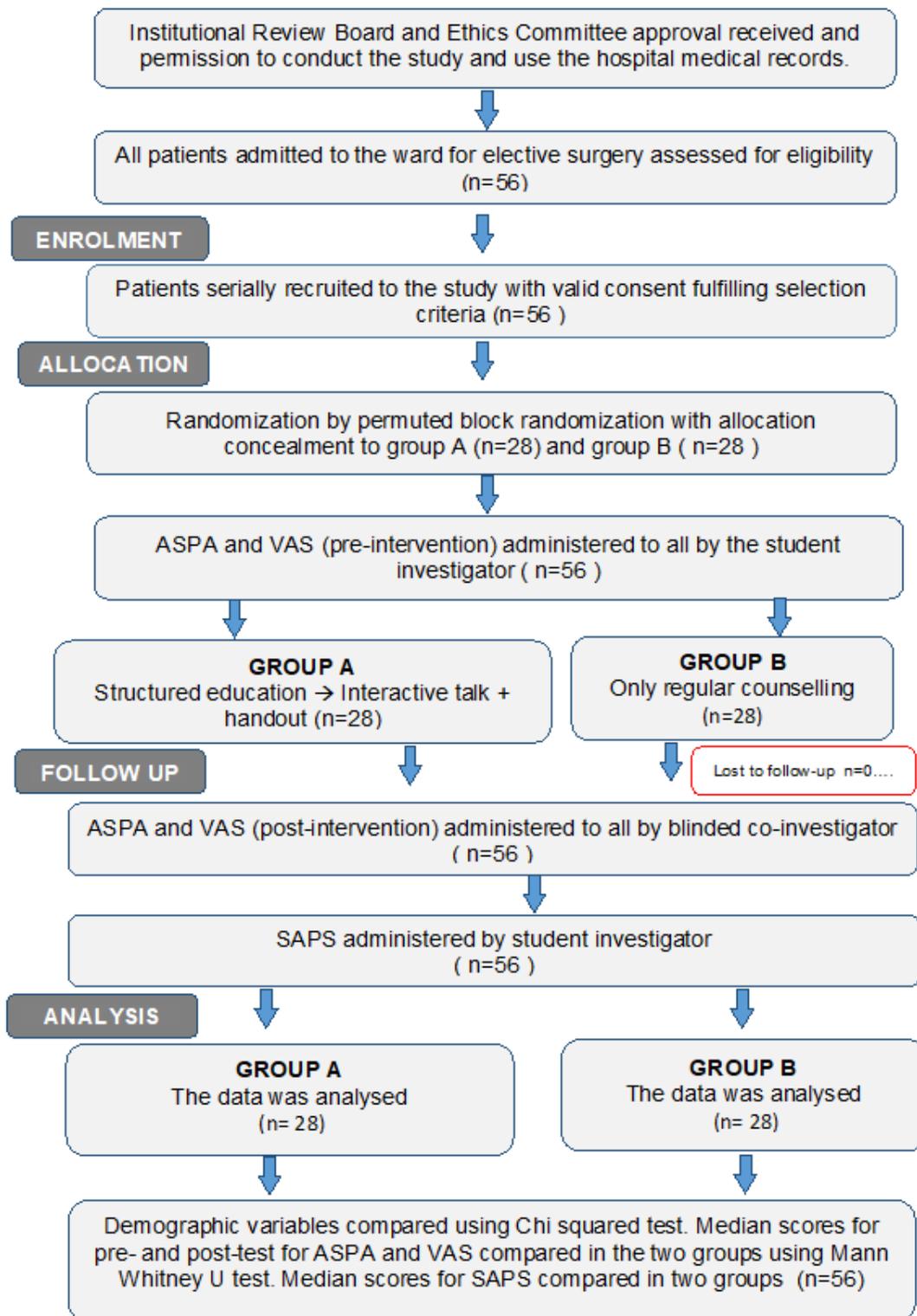


Fig. 1: Study flow diagram following consort guidelines

Table 1: Frequency distribution of baseline characteristics of study group

Variables	Intervention Group n=28 (%)	Comparator Group n =28 (%)	Total n=56 (%)
Age			
20-35 years	7 (25%)	9 (32.1%)	16 (28.5%)
36-50 years	11 (39.2%)	9 (32.1%)	20 (35.7%)
51-60 years	10 (35.7%)	10 (35.7%)	20 (35.7%)
Gender			
Male	9 (32.1%)	9 (32.1%)	18 (32.1%)
Female	19 (67.8%)	19 (67.8%)	38 (67.8%)
Education			
High school	14 (50%)	13 (46.4%)	27 (48.2%)
Higher secondary	3(10.7%)	6(21.4%)	9(16.07%)
UG degree	9(32.1%)	7(25%)	16(28.5%)
PG degree	2(7.14%)	2(7.14%)	4(7.14%)
Previous surgery			
No	13(46.4%)	16(57.1%)	29(51.7%)
Yes	15(53.50%)	12(42.80%)	27(48.2%)
Surgery			
Neck surgery	11(39.20%)	8(28.5%)	19(33.9%)
Breast surgery	9(32.1%)	2(7.14%)	11(19.6%)
Abdominal surgery	8(28.5%)	17(60.7%)	25(44.6%)

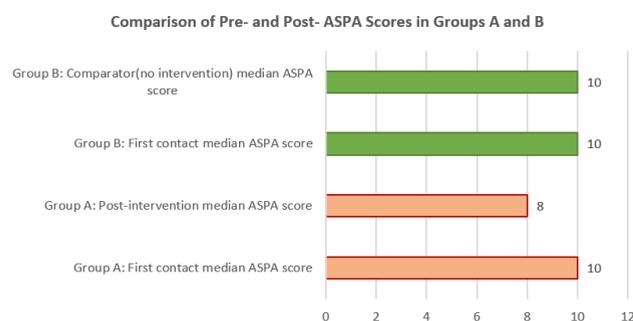


Fig. 2: Pre- and post-ASPA median scores in intervention/comparator groups

There was a significant difference in the pre- and post-ASPA scores in the intervention group (Group A) compared to the comparator group(Group B) when compared using the Mann Whitney U-test ($p < 0.001$). The VAS Scale was used to measure fear as reported by the participant. The difference in median score before and after intervention was 20 indicating a significant reduction in fear when compared using the Mann Whitney U-test ($p < 0.001$)

This has been seen in other studies as well. In a study by Jaffer et al, significant preoperative anxiety was seen in 62 % patients (73% females and 42% males). They also found frequency of anxiety decreased with advancing age but increased with higher educational status. [19] We found this to be true in our study as well.

In our study more than half the patients were undergoing surgery for the first time. In Jaffer’s study a total of 77% of patients with no previous exposure to surgery and 26% of

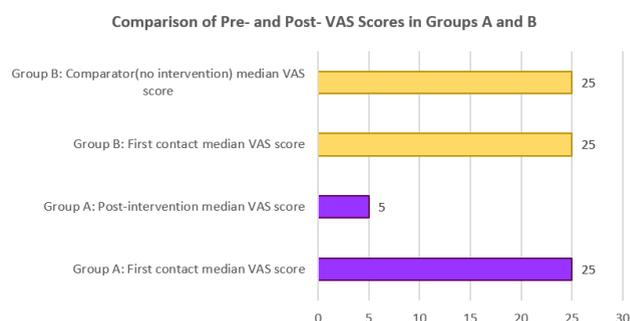


Fig. 3: Pre- and post-VAS scores in intervention and comparator groups

There was a significant difference in the pre- and post-VAS scores in the intervention group (Group A) compared to the comparator group (Group B) when compared using the Mann Whitney U-test ($p < .001$).

patients who had previous surgery, were anxious. [19]

Maheswari et al studied preoperative anxiety in patients posted for elective Caesarean section and found 72.7% of patients with anxiety in those having general anaesthesia compared to 51.8% in those having regional anaesthesia. ($p < 0.005$). All the patients in our study had surgery under general anaesthesia. In our study of 56 participants we found high anxiety scores in 33 (60%) participants

In a study in Japan conducted to assess the impact of information provided to the patient on the anxiety levels there was a reduction in anxiety levels. The education provided regarding the condition requiring treatment,

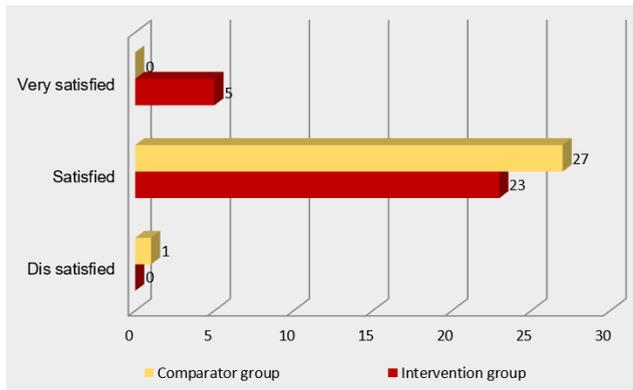


Fig. 4: Comparison of patient satisfaction scores in the two groups

The median scores of patients in the interventional group, who received the educational intervention were higher when compared to the scores of patients in the comparator group who did not receive the educational intervention prior to surgery.

necessary details of the surgical procedure and assurance regarding effectiveness of anaesthesia, enabled the patient to approach the surgery with less anxiety.²⁰ We ensured that these aspects were included in our structured educational module. However the main thrust of the intervention was to demystify anaesthesia, and give assurance about the competence of anaesthetists and surgeons and adequate pain relief measures following surgery.

We found that the anxiety and fear of patients were reduced significantly in participants who received the educational intervention with the difference in the median pre- and post- scores for anxiety in intervention group being 2 (p value= <0.001) while it was not much changed in the comparator group (p value= <0.001).

The difference in pre-intervention and post-intervention median VAS scores assessing fear was 22.50 in the intervention group with not much change between pre and post test scores in the comparator group.

The study of the qualitative aspects of anxiety reveals three distinct dimensions of preoperative fear: fear of the unknown, fear of feeling ill, and fear for one's life. Groups of patients with a higher degree of preoperative anxiety and their specific anesthetic concerns can be identified using the visual analog scale.

The SAPS scale is based on a firm theoretical model of patient satisfaction and its descriptive system covers the known dimensions contributing to patient satisfaction.¹⁴ The patient satisfaction scores in the interventional group were much higher than the comparator group (p value=0.042) with 5 (17.8%) saying they were very satisfied, 23 (82.1%) saying they were satisfied and none saying they were dissatisfied. In the comparator group 27 (96.4%) and one was dissatisfied.

5. Conclusion

In this study we found that the planned structured educational intervention about anaesthesia, had a role in significantly allaying pre-operative anxiety and decreasing fear in patients admitted for surgery in this tertiary care hospital.

We also found that the educational intervention significantly improves patient satisfaction following surgery.

6. Implication

From the study we have seen that planned, structured counselling to demystify anaesthesia will allay anxiety, decrease fear and improve satisfaction in patients awaiting surgery. This module can be easily replicated and made standard of care in all patients awaiting surgery to help them to approach surgery with less fear and anxiety.

7. Acknowledgements

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Conflicts of interest

None.

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